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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/591,705	01/19/2007	Katsumi Ichitani	295894US0PCT	3044

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1940 DUKE STREET
ALEXANDRIA, VA 22314

EXAMINER

MCAVOY, ELLEN M

ART UNIT	PAPER NUMBER
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1797

NOTIFICATION DATE	DELIVERY MODE
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09/09/2009

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No. 10/591,705	Applicant(s) ICHITANI ET AL.	
	Examiner Ellen M. McAvoy	Art Unit 1797	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 June 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 5 and 7-22 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 5 and 7-22 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 5 and 7-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hewson et al (6,239,082), Sweet (US 2005/0039832) and Ichitani et al (7,347,927), considered separately, each in combination with Shimosato et al (2002/0166610).

Applicants' arguments filed 01 June 2009 have been fully considered but they are not persuasive. As previously set forth, Hewson et al ["Hewson"] disclose petroleum quench oil effective for high speed cooling of heated metals and metal hardening, especially steel. The petroleum quench oil contains natural or synthetic base oils having a minimum flash point of about 120°C and having a viscosity between 5 and 100 cSt at 40°C; one such base oil is a solvent refined paraffinic base stock. See column 1, lines 4-42. The petroleum quench oil additionally includes a quench speed accelerator additive system containing (a) a polymer or copolymer having alkylene groups such as polyisobutylene in an amount of about 1.5 to 12 vol.%, and (b) a succinic acid or succinic anhydride functionalized polymer or copolymer having alkylene groups in an amount of from about 0.5 to 4.5 vol. %. The examiner is of the position that the petroleum quench oil of Hewson meets the limitations of the claimed quenching oil when the vapor blanket breaking agent is a polyolefin such as polyisobutylene. Applicants' open-ended claim language "comprising" allows for the addition of other additives to the quenching oil such as the succinic acid or succinic anhydride functionalized polymer or copolymer having alkylene groups of

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Hewson. Applicants' invention differs in amended claim 5 by including the limitation that the pressure on the surface of the quenching oil is reduced in the quenching method. However, as evidenced by Shimosato et al ["Shimosato"], the internal pressure in an oil quenching chamber during quenching may be lowered to 7 to 75 kPa. See [0014].

In response, applicants amended dependent method claim 5 to an independent method claim containing the limitation of adjusting the pressure on the surface of a quenching oil to a reduced pressure condition, and argued that Hewson does not disclose or suggest quenching under reduced pressure conditions as presently claimed. This is not deemed to be persuasive because the claim language "reduced pressure condition" is vague and it is not clear what degree of pressure reduction (i.e., a very minor amount) meets the claim limitation. Further, the examiner is of the position that since the quenching oil composition of the claims may be the same as the quenching oil composition of Hewson, and since Hewson also teaches using the oil composition for quenching a metallic material such as steel, a minor amount of "pressure reduction" on the surface of the quenching oil is seen to be obvious and is not expected to affect the known method of quenching a metallic material. Additionally, as set forth above, Shimosato is added to teach that it is known in the art to lower the pressure on the surface of the quenching oil in a quenching process.

Sweet et al ["Sweet"] disclose quenching oil compositions comprising (1) a base oil having a kinematic viscosity at 40°C ranging from about 4 to about 45 mm²/s and having a saturated content from about 80% to 100%, (2) an alkali metal salt of saligenin derivative and, optionally, further comprising at least one of (3) an aliphatic polyolefin having a molecular

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weight ranging from about 300 to about 10,000, (4) a metal salt component, and (5) succinic ester compounds. See page 2, paragraphs [0019] to [0026]. The examiner is of the position that the quenching oil compositions of Sweet meet the limitations of the claimed quenching oil when the vapor blanket breaking agent is a polyolefin. Applicants' open-ended claim language "comprising" allows for the addition of other additives to the quenching oil such as components (2), (4) and (5) of Sweet. Applicants' invention differs in amended claim 5 by including the limitation that the pressure on the surface of the quenching oil is reduced in the quenching method. However, as evidenced by Shimosato, the internal pressure in an oil quenching chamber during quenching may be lowered to 7 to 75 kPa. See [0014].

In response, applicants amended dependent method claim 5 to an independent method claim containing the limitation of adjusting the pressure on the surface of a quenching oil to a reduced pressure condition, and argued that Sweet does not disclose or suggest quenching under reduced pressure conditions as presently claimed. This is not deemed to be persuasive because the claim language "reduced pressure condition" is vague and it is not clear what degree of pressure reduction (i.e., a very minor amount) meets the claim limitation. Further, the examiner is of the position that since the quenching oil composition of the claims may be the same as the quenching oil composition of Sweet, and since Sweet also teaches using the oil composition for quenching a metallic material such as steel, a minor amount of "pressure reduction" on the surface of the quenching oil is seen to be obvious and is not expected to affect the known method of quenching a metallic material. Additionally, as set forth above, Shimosato is added to teach that it is known in the art to lower the pressure on the surface of the quenching oil in a quenching process.

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Ichitani et al [“Ichitani”] disclose a heat treatment oil composition comprising a mixed base oil containing 50-95 weight % of (A) a low viscosity base oil with a kinematic viscosity of 5-60 mm²/s at 40°C, 50-5 weight % of (B) a high viscosity base oil with a kinematic viscosity of more than 300 mm²/s at 40°C, and (C) a vapor blanket-breaking agent including ethylene-alpha-olefin copolymers, polyolefins and polymethacrylates. See column 1, line 55 to column 3, line 26. The examiner is of the position that the heat treatment oil composition of Ichitani meets the limitations of the claimed quenching oil. Applicants’ open-ended claim language “comprising” allows for the addition of other additives to the quenching oil such as the high viscosity base oil of Ichitani. Applicants’ invention differs in amended claim 5 by including the limitation that the pressure on the surface of the quenching oil is reduced in the quenching method. However, as evidenced by Shimosato, the internal pressure in an oil quenching chamber during quenching may be lowered to 7 to 75 kPa. See [0014].

In response, applicants amended dependent method claim 5 to an independent method claim containing the limitation of adjusting the pressure on the surface of a quenching oil to a reduced pressure condition, and argued that Ichitani does not disclose or suggest quenching under reduced pressure conditions as presently claimed. This is not deemed to be persuasive because the claim language “reduced pressure condition” is vague and it is not clear what degree of pressure reduction (i.e., a very minor amount) meets the claim limitation. Further, the examiner is of the position that since the quenching oil composition of the claims may be the same as the quenching oil composition of Ichitani, and since Ichitani also teaches using the oil composition for quenching a metallic material such as steel, a minor amount of “pressure reduction” on the surface of the quenching oil is seen to be obvious and is not expected to affect

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the known method of quenching a metallic material. Additionally, as set forth above, Shimosato is added to teach that it is known in the art to lower the pressure on the surface of the quenching oil in a quenching process.

Applicants' amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicants are reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ellen M. McAvoy whose telephone number is (571) 272-1451. The examiner can normally be reached on M-F (7:30-5:00) with alt. Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn Caldarola can be reached on (571) 272-1444. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Ellen M McAvoy/
Primary Examiner
Art Unit 1797

EMcAvoy
September 2, 2009